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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,989	07/11/2003	Kazuto Hirokawa	2003-0954A	2781

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EXAMINER

SHAKERI, HADI

ART UNIT	PAPER NUMBER
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3723

DATE MAILED: 10/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary**Application No.**

10/616,989

Applicant(s)

HIROKAWA, KAZUTO

Examiner

Hadi Shakeri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 30-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 30-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

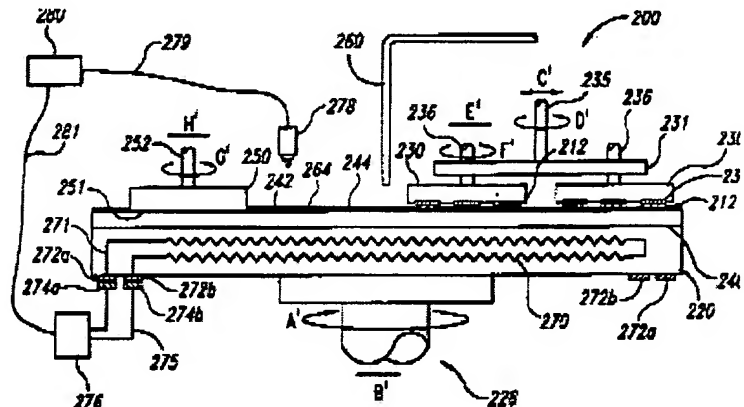
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-9, 12-19 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Brunelli (5,957,750).

Brunelli discloses all of the limitations of claims 1, 12 and 13, i.e., a polishing method/apparatus for polishing a workpiece, comprising pressing a workpiece against a polishing surface of a polishing tool (12) containing a resin (01:43), to bring the workpiece into sliding contact with said polishing tool, thereby polishing the workpiece with abrasive particles, while the tool is maintained at a temperature of 98% of its glass transitional temperature. Note that in an apparatus claim, the intended use does not further limit the apparatus unless resulting and/or requiring certain structural limitation, the apparatus as disclosed by Brunelli is capable of meeting the intended use language, i.e., to keep at least a



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part of said polishing tool's temperature lower than a glass transition temperature of said polishing tool.

Regarding claims 2-9 and 14-19, Brunelli meets the limitations, i.e., heating the surface by heating the table, polishing liquid or a dresser liquid (244), the workpiece (Fig. 3), processing assistance (250) which is operated independent of the workpiece holder; the heating elements and/or the thermostat (280) capable of heating or cooling the platen, slurry and/or a dresser.

3. Claims 1-3, 12-14 and 30-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Cote et al. (6,375,693).

Cote et al. discloses all of the limitations of claims 1, 12 and 13, i.e., a polishing method/apparatus for polishing a workpiece, comprising pressing a workpiece against a polishing surface of a polishing tool (12) containing a resin, to bring the workpiece into sliding contact with said polishing tool, thereby polishing the workpiece with abrasive particles (CMP pad, Example 1), while the tool is maintained at a temperature below its glass transitional temperature (06:30-43). Note that in an apparatus claim, the intended use does not further limit the apparatus unless resulting and/or requiring certain structural limitation, the apparatus as disclosed by Brunelli is capable of meeting the intended use language, i.e., to keep at least a part of said polishing tool's temperature lower than a glass transition temperature of said polishing tool.

Regarding claims 2, 3, 13, 14 and 30-32, Cote et al. meets the limitations, i.e., water-cooled platen.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

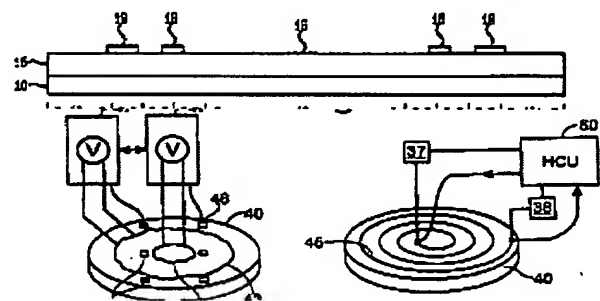
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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunelli in view of Yang et al. (6,749,484), Monore (6,227,939) or Wise et al. (6,020,262).

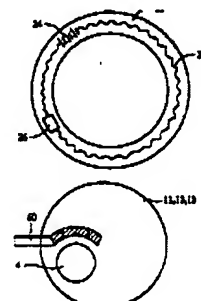
Brunelli meets all of the limitations of the above claims, except for disclosing controlling the temperature through a member attached to the polishing head carrying the workpiece. Controlling temperature through the top ring is known as evident by Yang et al., Monore or Wise et al.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Brunelli with temperature control means as taught by Yang et al., Monore or Wise et al. as another economical means of controlling parameters in CMP operations.



6. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunelli in view of Yang et al.

Brunelli meets all of the limitations of the above claims, except for disclosing controlling the temperature through a member operable independent of the dresser and a polishing head carrying the workpiece. Yang et al. teaches CMP apparatus with temperature control utilizing a member (60) operable independent of the top ring holding the wafer.



It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Brunelli with temperature control means as taught by Yang et al. as another economical means of controlling parameters in CMP operations.

7. Claims 30 and 31 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Brunelli.

Thermostat (280) regulating the temperature, e.g., by activating/deactivating the heater or by regulating the temperature via the thermostat in establishing the desired temperature, as disclosed by Brunelli is considered to meet the limitation as recited, however, in the alternative, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to cool the tool and/or processing circumstance as a means of controlling parameters in CMP operations by controlling the temperature.

8. Claims 4-11 and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. in view of prior art (Yang et al., Monore or Wise et al.) cited.

Cote et al. meets all of the limitations of the above claims, except for disclosing controlling the temperature through the particular means as recited in the above claims. Controlling temperature by such means would have been obvious to one of ordinary skill in the art, at the time the invention was made as described above in sections 5 and 6.

Response to Arguments

9. Applicant's arguments filed 08/11/05 have been fully considered but they are not persuasive. The argument that Brunelli does not keep or maintain the temperature of the polishing tool at a temperature lower than the glass transition is not persuasive. Brunelli disclosed that the planarizing surface of the pad is maintained at a predetermined temperature

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while the pad is conditioned (04:15-18) and it further discloses that where conditioning occurs concurrently with planarization through put is increased by eliminating waste matter accumulations, and that waste matter accumulation may not form at all, since the relative motion between the pad and the wafer may be sufficient to condition the pad (07:45-56), clearly disclosing maintaining the temperature at a predetermined value (e.g., 98% of the glass transition as disclosed by the lower limit) during the planarization.

10. Prior art made of record and not relied upon are considered pertinent to applicant's disclosure. Taylor is cited to show related invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is (571) 272-4495. The examiner can normally be reached on Monday-Thursday.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hadi Shakeri
Primary Examiner
Art Unit 3723
October 20, 2005